

Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

REMARKS

Present Status of the Application

The Office Action rejects claims 1-7 under 35 U.S.C. 103(a) as being unpatentable over Naumov et al. (U. S. Patent 6,875,950; hereinafter Naumov) in view of Girard et al. (U. S. Patent 6,146,813; hereinafter Girard). In addition, claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naumov in view of Girard and further in view of Manginell et al. (U. S. patent 6,171,378; hereinafter Manginell). Claims 1-7 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Claim Rejections under 35 USC 103

The Office Action rejects claims 1- 7 under 35 U.S.C. 103(a) as being unpatentable over Naumov in view of Girard. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naumov in view of Girard and further In view of Manginell. Applicants respectfully traverse the rejections for at least the reasons set forth below.

1. In responding to "*Response to Arguments*" made by the Office Action, Applicants want to emphasize that the claimed invention has functionally defined the structure being different from the prior art. The laser-generating module of the present invention is defined to operate the annealing on the amorphous silicon. As can be understood by the ordinarily skilled artisan, the claimed laser will definitely not cut the amorphous silicon. *If the trimming laser of Naumov or the ablating laser of Girard (col. 15, lines 1-14) is used in the present invention, the amorphous silicon is then cut and destroyed.* Therefore, the annealing laser in the claimed

Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

apparatus is functionally structural difference from the prior art. This is just like the situation that a laser light source is different from a laser for cutting material, burning material, using as a weapon... and so on.

In addition, the laser energy density is optimized by the host circuit module in time, according to the changing of the sheet resistance of the polysilicon during annealing process. In other words, the host circuit module is not equally disclosed by prior art references.

As a result, when considering the invention as a whole, the claimed apparatus has the structure of annealing laser and is different from the structures in prior art references. Therefore, the present invention is not just an intended use from the prior art, as stated by the Office Action.

2. In more details, the present invention is directed to a laser annealing on the amorphous silicon film into polysilicon film. The resistant-measurement module is used to measure a sheet resistance of the polysilicon thin film for obtaining a sheet resistance value, so that the host circuit module can adjust and optimize the laser energy density. In other words, the laser energy is properly varying with the current resistance of the polysilicon under annealing.

3. In Re Naumov, clearly, the laser is used to trim the untrimmed elements on the panel 540 (FIG. 5; col. 14, lines 57-63) or used to have a trim cut (ablation) 1120 on other passive element (Fig. 11; col. 22, lines 21-25). Further, Naumov does not vary the power of laser once the power is set (col. 15, lines 49-63). Therefore, Naumov does not disclose the

Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

resistance-measurement module of the present invention to measure the resistance of the annealed silicon, so as to proper adjust the laser energy. In other words, during the trimming process of Naumov, the laser energy is set to a fixed energy density to cut material. This laser module is different from the annealing laser module of the present invention, in which the laser energy density is varying according to the sheet resistance.

4. In re Girard, again, the laser is used to carbonization to form the shunt by ablation. The laser is operated just below the ablation threshold (col. 15, lines 1-14 *in which the laser energy of Girard is at a fixed energy density*). Even though the resistance is measured and fed back in Girard (col. 15, lines 12-14), there is no specifically disclosure about where to feed back and what the functional effect of the feedback information to produce. Therefore, *the present invention is functionally different from Girard* when considering the present invention as a whole. In Girard, *the laser energy density is not adjusted according to the measured resistance*.

Therefore, Girard fails to disclose the measurement on the sheet resistance of the polysilicon, so as to adjust the annealing laser energy. The feedback of measuring resistance of Girard is still insufficient to provide the motivation in combination with Naumov to achieve the present invention. The present invention has been also functionally different from the Naumov and Girard either alone or in combination.

Further, the present invention is directed to annealing the amorphous silicon thin film and

Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

are nonanalogous to Naumov and Girard about trimming or ablating material.

5. With respect to claims 5 and 6, depending on claim 1, Manginell is further cited in combination. However, Manginell discloses the "chemical preconcentrator". In Fig. 10 of Manginell, the sample is fed and the preconcentrated sample is exported for analysis. This does not supply the missing features in Naumov and Girard with respect to the independent claim 1 and therefore in claims 5 and 6. Manginell is also nonanalogous to the present invention.

For at least the foregoing reasons, Applicants respectfully submit that independent claim 1 patently defines over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-7 patently define over the prior art references as well.

Customer No.: 31561
Application No.: 10/709,036
Docket No.: 12468-US-PA

CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-7 of the invention patentably define over the prior art and are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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